

(43) International Publication Date 7 March 2002 (07.03.2002)

PCT

(10) International Publication Number WO 02/18441 A3

- B29C 41/00. (51) International Patent Classification?: C07K 14/75, A61L 15/32, C12N 5/00, C12Q 1/02, A61K 47/42, C12N 5/06
- (21) International Application Number: PCT/US01/27409
- (22) International Filing Date:

4 September 2001 (04.09.2001)

(25) Filing Language:

English

(26) Publication Language:

English

US

(30) Priority Data:

09/654,517 1 September 2000 (01.09.2000) 60/241,008 18 October 2000 (18,10,2000)

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- (81) Designated States (national): AE. AG, AL. AM. AT. AU. AZ. BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR. LS, LT, LU, LV. MA. MD. MG. MK, MN. MW. MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU. ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH. GM. KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT. BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,

Published:

with international search report

(88) Date of publication of the international search report: 30 May 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROPROCESSED FIBRIN-BASED MATRICES AND TISSUES

(57) Abstract: The invention is directed to formation and use of electroprocessed fibrin as an extracellular matrix and, together with cells, its use in forming engineered tissue. The engineered tissue can include the synthetic manufacture of specific organs or tissues which may be implanted into a recipient. The electroprocessed fibrin may also be combined with other molecules in order to deliver the molecules to the site of application or implantation of the electroprocessed fibrin. The fibrin or fibrin/cell suspension is electrodeposited onto a substrate to form the tissues and organs.

INTERNATIONAL SEARCH REPORT

nternational Application No PCT/US 01/27409

A. CLASSI IPC 7	FICATION OF SUBJECT MATTER B29C41/00 C07K14/75 A61L15/ A61K47/42 C12N5/06	32 C12N5/00	C12Q1/02						
According to International Patent Classification (IPC) or to both national classification and IPC									
B. FIELDS SEARCHED									
Minimum documentation searched (classification system followed by classification symbols) IPC 7 B29C A61L C07K B05B D01D C12N									
Documenta	tion searched other than minimum documentalion to the extent that	such documents are included in	the fields searched						
Electronic data base consulted during the international search (name of data base and, where pradical, search terms used)									
WPI Da	ta, PAJ, EPO-Internal								
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT								
Category *	Citation of document, with indication, where appropriate, of the re	elevant passages	Relevant to claim No.						
X	WO 98 03267 A (ELECTROSOLS LTD ; RONALD ALAN (GB)) 29 January 1998 (1998-01-29) claims 1-5,16,20,25,26,36; figu	1-11							
A	WO 98 56894 A (UNIV MINNESOTA) 17 December 1998 (1998-12-17) the whole document	1-11							
Ε	GB 2 360 789 A (MASON CHRISTOPHE 3 October 2001 (2001-10-03) claims; examples 3-5	R)	1-11						
Funt	ner documents are listed in the continuation of box C.	χ Patent family members	s are listed in annex.						
* Special categories of cited documents: 'A* document defining the general state of the art which is not considered to be of particular relevance 'T* tater document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention									
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"L" document which may throw doubts on priority claim(s) or involve an inventive step when the document is taken alone which is sited to establish the publication date of another.									
citation	n or other special reason (as specified) ant reterring to an oral disclosure, use, exhibition or		vance; the claimed invention volve an inventive step when the n one or more other such docu-						
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27 February 2002		06/03/2002							
Name and n	nailing address of the ISA	Authorized officer							
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INTERNATIONAL SEARCH REPORT

Information on patent family members

international Application No PCT/US 01/27409

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9803267	A	29-01-1998	AU EP WO JP	3628497 A 0912251 A1 9803267 A1 2000516130 T	10-02-1998 06-05-1999 29-01-1998 05-12-2000
WO 9856894	A	17-12-1998	AU EP US WO	8059998 A 0988370 A1 6093557 A 9856894 A1	30-12-1998 29-03-2000 25-07-2000 17-12-1998
GB 2360789	Α	03-10-2001	NONE		